



COMPARATIVE EVALUATION OF THE RESULTS OF SURGICAL PREPARATION FOR IMPLANTATION OF ATROPHIED LATERAL PARTS OF THE MANDIBLE

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✓ Resume

The article contains a detailed description of an innovative approach to solving such a problem of surgical dentistry as the preparation of atrophied lateral sections of the mandible for implantation. The modern approach is to identify the degree of atrophy of the bone tissue of the lower jaw using 3-D radiography and the use of Osstem osteoplastic material in order to restore the defect of the jaws. Possible complications of dental implantation and ways of their elimination and prevention are given.

Keywords: dental implantation, osseointegration, jaw bone atrophy, osteoplastic material.

СРАВНИТЕЛЬНАЯ ОЦЕНКА РЕЗУЛЬТАТОВ ХИРУРГИЧЕСКОЙ ПОДГОТОВКИ К ИМПЛАНТАЦИИ АТРОФИРОВАННЫХ БОКОВЫХ ОТДЕЛОВ НИЖНЕЙ ЧЕЛЮСТИ

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✓ Резюме

Статья содержит подробное изложение инновационного подхода к решению такой проблемы хирургической стоматологии, как подготовка атрофированных боковых отделов нижней челюсти к имплантации. Современный подход заключается в выявлении степени атрофии костной ткани нижней челюсти с помощью 3-D рентгенографии и применении остеопластического материала Osstem с целью восстановления дефекта челюстей. Приведены возможные осложнения дентальной имплантации и способы их устранения и профилактики.

Ключевые слова: дентальная имплантация, остеointеграция, атрофия костной ткани челюстей, остеопластический материал.

PASTKI JAG ' ATRAFIYALANGAN YON QISMLARINI IMPLANTATSIYAGA JARROHLIK TAYYORLASH NATIJALARINI QIYOSIY BAHOLASH

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Maqolada jarrohlik stomatologiyasining muammolarini hal qilish uchun innovatsion yondashuvning batafsil tavsifi keltirilgan, pastki jag'ning yon qismlari atrofiyasini implantatsiya qilish uchun tayyorlash yoritilgan. 3-D rentgenografiyasi yordamida zamonaviy yondashuv pastki jag 'suyag to'qimasining atrofiyasi darajasini aniqlash va jag ' nuqsonini tiklash maqsadida osstem osteoplastik materialini qo'llashdan iborat. Dental implantatsiyasi natijasida kelib chiqishi mumkin bo'lgan asoratlar va ularni bartaraf etish va oldini olish usullari keltirilgan.

Kalit so'zlar: dental implantatsiya, osteointegratsiya, jag ' suyagi atrofiyasi, osteoplastik material.

Relevance

Early extraction of teeth and untimely prosthetics lead to atrophy of the jaw bone tissue, deterioration of functional and aesthetic parameters, making prosthetics difficult and worsening conditions for dental implantation [7, 14, 21]. Until now, in most dental clinics in our country, when

extracting teeth, tactics that involve simultaneous replacement of bone defects and the use of tooth-preserving technologies are not used enough.

In modern literature, several methods of influencing reparative osteogenesis are considered: osteoplastic materials and INR, the use of biomembranes and guided bone tissue regeneration, bone autoplasty, distraction osteogenesis, etc. [1, 6, 16, 19]. In this regard, the relevance of finding ways to improve the effectiveness of treatment of patients in the period from tooth extraction to the manufacture of a permanent orthopedic structure and the improvement of methods that help reduce bone tissue atrophy and restore the height of the alveolar process remains relevant [3, 9, 12, 13, 17].

Considering the presence of several modern methods of osteoplasty of defects in the alveolar processes of the jaws and the variety of osteoplastic materials, there is no unambiguous solution to the problem, which causes difficulties in choosing the optimal osteoplasty technique in the practical work of an ordinary dental surgeon [4, 10, 15, 23].

Currently, the main method for studying the processes of bone tissue regeneration in surgical dentistry is X-ray examination, the role of which is steadily increasing. This is facilitated by significant advances in dentistry, as well as progress in the development of x-ray and computer technology over the past decades [20, 24]. The planning of the osteoplasty method depends on the exact determination of the degree of bone tissue resorption, the nature and size of the bone defect, and the assessment of the result of osteoplasty requires monitoring of bone tissue regeneration [2, 8, 18].

The advent of radiovisiographs marked a new stage in the development of dental radiology [22]. Considering the advantages of the radiovisiography method, it can be considered the most optimal for studying the density of jaw bone tissue [5, 11, 15, 22].

Purpose of the study. Optimization of surgical tactics when compensating for bone defects and increasing the size of atrophied alveolar processes of the jaws before implantation at an outpatient appointment with a dental surgeon.

Materials and methods

To study the need and clinical experience of osteoplastic surgery to prepare patients with atrophy of the lateral parts of the lower jaw for dental implantation. Determine the structure, architecture and degree of atrophy of the jaw bone tissue using modern 3D radiological methods. Replenishment of bone tissue with Osstem osteoplastic materials to prepare patients with atrophy of the lower jaw for dental implantation. Application of the developed methods for eliminating defects of the alveolar side of the lower jaw and evaluation of their effectiveness. Object and subject of research: 40 patients of the Department of Maxillofacial Surgery of the Bukhara Regional Multidisciplinary Medical Center will be examined. Research is ongoing to optimize the surgical preparation of these patients with dental implant prostheses.

Results and their discussion

As a result of the analysis, it was revealed that with a vertical load, the maximum stress values in the finite element models of the lower jaw decrease when simulating the installation of an intraosseous-osseous implant with a sleeve made of NTMSP by 43% compared with an intraosseous cylindrical implant and by 37.09% compared to an intraosseous implant. With a horizontal load, the maximum stress values in the finite element models of the lower jaw decrease when simulating the installation of an intraosseous-osseous implant with a sleeve made of NTMSP by 49.08% compared to an intraosseous cylindrical implant and by 47.8% compared to an intraosseous-osseous implant due to the introduction of an additional stabilizing bone miniplate and a sleeve made of NTMSP into the structure. These studies were the basis for the introduction into clinical practice of the design of a dental implant that functions under conditions of bone tissue atrophy. To evaluate the results of dental implantation, a clinical study of peri-implant tissues was performed.

We used indicators of the functioning of implants according to M.Z. Mirgazizov, allowing to simultaneously assess the state of the bone tissue, the mobility of the implant, the presence or absence of a peri-implant pocket. In patients of the main group, 93 DVNI with a sleeve made of NTMSP and 81 implants in the control group had no mobility, there was no pathological pocket in the first 3 months of operation, the integral index was 1.0. It should be noted that by the end of the 3rd month, permanent fixation of orthopedic structures was carried out on the DVNI with a sleeve made of NTMSP, and when using intraosseous implants, gum formers were installed and prosthetics were started. In the first 3 months after the operation, inflammatory phenomena characteristic of peri-implantitis were found around 29 implants placed. Of all 197 implants installed in the early stages (up

to 6 months) of functioning, 7 implants showed signs of disintegration, which led to their removal. Subsequently, during the first and second years of functioning, 1 implant was removed in the main group for peri-implantitis, and 1 implant was also removed in the control group. This is evidenced by the integral indicator of the functioning of implants with a value of 0.

After analyzing the performance of implants in the dynamics of observation, it was found that the number of implants with temporary mobility of I-III degrees in both groups decreased by the end of the 2nd year of operation and amounted to: 2 implant in the main and 5 in the control. In patients of the main group, 89 DVNIs with a sleeve made of NTMSP and 87 implants in the control group had no implant mobility, there was no pathological pocket by the end of the second year of operation, the integral index was 1.0. Compared with the group of patients who underwent the installation of intraosseous screw implants, adverse outcomes (development of peri-implantitis with subsequent disintegration of the implants, development of neuritis of the inferior alveolar nerve, exposure of the subperiosteal part of the implant) were observed in patients who underwent the installation of PVNI with a sleeve made of TMSP in conditions of bone tissue atrophy.

Conclusions

The influence of various methods of osteoplasty on osteoreparation was assessed depending on the nature and size of defects, the type of osteoplastic material, membranes and autologous bone. The proposed method for quantitative analysis of the density of the jaw bone tissue according to radiovisiography data for the practical evaluation of the results of osteoplasty at an outpatient dental appointment. The dynamics of changes in bone density according to radiovisiography after 1, 3, 6 and 12 months was studied to compare the effectiveness of various methods of osteoplasty in a dental clinic. The proposed algorithm for the optimal choice of tactics and methods of osteoplasty using autologous bone, membranes, osteoplastic materials and fibrin-enriched platelet plasma, which improves the results of treatment. The study of bone density makes it possible to assess the probability of integration, possible complications, the rate of resorption and adequately plan the stages of surgical treatment. The results of the study can be used in the educational process in the preparation of dental surgeons.

Practical recommendations. To recommend for wide use in clinical practice implants made of non-woven titanium material with through porosity. To recommend in clinical practice a new endosseous-subperiosteal implant, which will expand the possibilities of dental implantation in conditions of bone tissue atrophy. Recommend the use of the author's algorithm for dental implantation in conditions of bone tissue deficiency. In case of bone deficiency, intraosseous titanium screws should be used for additional fixation of the extraosseous part of the DVNI. For theoretical justification and creation of new designs of dental implants, we recommend using the developed experimental model of the jaw with signs of bone deficiency.

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Entered 09.03.2022